January in the present year, a nest of about a score young frogs were upturned. These were apparently three or four weeks old. This ground had been previously dug in the month of August and many strawberry plants buried; it was amongst a mass of these plants in a state of partial decomposition that these young ones were observed.

Fifthly. *Young frogs are bred in cellars where there is no water for tadpoles.*

In mentioning this subject to Mr. Joseph Sidebotham of Manchester (an active botanist), he informed me that young frogs, and in fact frogs of all sizes, were to be seen in his cellar amongst decaying dahlia tubers. The smallest of them were only about half the ordinary size of the young frog when newly developed from the tadpole. He further stated that there was no water in the cellar, and no means of young frogs entering, except by first coming into the kitchen, a mode of entry, if not impossible, highly improbable. Mr. Sidebotham never found any spawn.

It seems probable from the above, that frogs are occasionally born alive in situations where no water can be found for the spawn to be deposited in, and that toads are either reproduced in the same manner, or from the egg directly. The latter mode seems most likely, owing to spawn having been found previously to the young toads.

Mr. Higginbottom tells me, the same remark on the birth of the Triton, without the stage of tadpole, has been mentioned to him.

These are the facts; should the subject be deemed worthy of further investigation, I shall be glad to continue observations upon these reptiles during the present year, or to make any experiments that may be deemed advisable.

March 17, 1853.

COLONEL SABINE, R.A., Treas. & V.P., in the Chair.

The Right Honourable Viscount Palmerston was balloted for and elected a Fellow of the Society.

The following papers were read:—

1. "On Animal and Vegetable Fibre as originally composed of Twin Spiral Filaments, in which every other structure has its Origin; a Note showing the confirmation by Agardh, in 1852, of observations recorded in the Philosophical Transactions for 1842." By Martin Barry, M.D., F.R.S., F.R.S.E. Received February 24, 1853.

After referring to the drawings to his paper on Fibre, published in the Philosophical Transactions for 1842, and the opinions entertained by physiologists regarding the peculiar views he advanced in that paper with reference to the original composition of organic fibre, the author states that, after the lapse of eleven years, these views have been fully confirmed, and in proof of this refers to a paper—"De cellula vegetabili fibrillis tenuissimis contexta" (Lundæ, 1852),

by Agardh. He further remarks, that his paper of 1842 contains a record of other observations made in a field beyond the region of Agardh's researches; observations which he thinks explain how it is that fibre forms the membrane of the cell, and, what he deems of more importance still, the mode of origin of fibre. He refers generally to the drawings in that paper, from which, in connection with facts previously recorded in the Philosophical Transactions, he states that it appears—1, that fibre has its origin in the so-called "cytoblast," the outer part of which always passes into a ring or coil of fibre; 2, that when a cell is to arise, its primary membrane is formed out of this ring or coil of fibre; 3, that then the nucleolus of the "cytoblast" becomes the nucleus of the cell; 4, that the outer part of the nucleus of the cell also passes into a ring or coil of fibre, wherewith to form deposits such as the annular and spiral, or to weave the secondary membranes; 5, that the term "cytoblast" is unsuitable, as the body so called does not always become a cell; 6, that fibre is thus more universal as well as more primitive even than the cell, for fibre not only forms the cell, but it forms other structures without having first to form a cell; 7, that the prime mover in both the "cytoblast" and the nucleus is the *nucleolus*, which is the organ of absorption, assimilation, and secretion; 8, that the nucleolus is continually giving off its substance and continually renewing it, continually passing from the state of nucleolus into that of "cytoblast" or nucleus,—so that the "cytoblast" and the nucleus are each of them but the nucleolus enlarged; 9, that it is therefore the nucleolus enlarged that passes into fibre; 10, that the nucleolus always passes into fibre, and directly into no other form than that of fibre; 11, that thus the whole organism arises out of nucleoli, for fibre is but the nucleolus in another shape, and every structure arises out of fibre; 12, that the nucleolus is reproduced by self-division, and that subsequently, when it has passed into the form of fibre, the mode in which the nucleolus gives origin to other structures is such as to imply even here the continued reproduction of its own substance—that mode being self-division.

The author describes particularly the mode of origin of primary and secondary membranes, and division of the cell. He considers that the latter is initiated by self-division of the nucleolus into halves which become "cytoblasts," and it is completed by the formation out of these of two young cells, the walls of which, where in contact with one another, form a septum dividing the parent cell into two compartments. Thus for division of the cell there occurs no folding inwards of a "primordial utricle," as maintained by Von Mohl, nor any division of the contents of a parent cell into two parts, around which contents are formed the walls of two young cells, as supposed by Nägeli and Hofmeister. On the subject of annular, spiral, and other deposits in the vessels of plants, the author remarks, that when the divisions of an annular or spiral fibre are not continued, but partial and irregular, we have the reticular form, as well as an explanation of the supposed tendency in vegetable fibre to anastomosis.

The two spiral filaments composing fibre at first appeared to the

author to run in opposite directions, which he subsequently saw was not the case,—their direction is the same. This error he corrected in Müller's Archiv for 1850.

The author remarks, that observers in their endeavours to reach the *ultimate* structure of the muscular fibril have actually gone too far, and reached a later generation,—mistaking for the fibril a row of quadrilateral particles, the mere elements thereof. These particles, he observes, are known to be alternately light and dark in alternate order; they give origin to the term spirals; and for this purpose the dark particles undergo what observers have entirely overlooked, division and subdivision, which changes he has figured in Müller's Archiv, 1850. The preparation in which he has again met with the subdivision into four is still, the author states, in his possession for demonstration to others.

2. "On the penetration of Spermatozoa into the interior of the Ovum; a Note showing this to have been recorded as an established fact in the Philosophical Transactions for 1843." By Martin Barry, M.D., F.R.S., F.R.S.E. Received February 24, 1853.

Referring to a statement by Dr. Nelson, in a paper "On the reproduction of the *Ascaris Mystax*," that the investigations in that paper "appear to be the first in which the fact of the penetration of spermatozoa into the ovum has been distinctly seen and clearly established in one of the most highly organized of the Entozoa," the author of the present communication remarks, that when Dr. Nelson made this statement he was evidently not aware of what had been published on the subject. In proof of this Dr. Barry refers to his own paper, entitled "Spermatozoa observed within the Mammiferous Ovum" (Phil. Trans. 1843, p. 33), in which he states that he had met with ova of the Rabbit containing a number of spermatozoa *in their interior*; and to the Edinburgh New Philosophical Journal for October 1843, which contains a drawing in which seven spermatozoa are represented in the interior of an ovum, besides the statement that in one instance he had counted more than twenty spermatozoa in a single ovum. In conclusion he remarks, that Dr. Nelson merely added a further confirmation in ova of an entozoon, to what his own researches on mammiferous ova had enabled him to record as an established fact nine years before.

The Society then adjourned to the 7th of April.

April 7, 1853.

COLONEL SABINE, R.A., Treas. & V.P., in the Chair.

A paper was read, entitled "Observations on the Anatomy of the Antennæ in a small species of Crustacean." By John D. McDonald, M.D., Assistant Surgeon to H.M.S.V. Torch. Communicated by